THE JOURNAL OF
EDUCATIONAL PSYCHOLOGY

Volume XXXVII December, 1946 Number 9

THE EDUCATIONAL PSYCHOLOGY OF PERSONS*

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If we are sometimes perplexed as to the field covered by educational psychology, we can look back to a time when it had very definite boundaries. A quarter century ago it was bounded on the east by Thorndike and on the west by Judd. For all to see, its Principia were in Judd's vigorous writings and in Thorndike's three volumes, which spread before the fascinated student a feast of wisdom about original nature, learning, and individual differences. It is no accident that for many years, following this lead, the subject-matter of educational psychology was drawn very largely from two allied branches: differential psychology and the experimental psychology of learning. For two decades the great preponderance of new research dealt either with aptitudes and attainments, or with studies of verbal learning or of classroom techniques for imparting specific knowledges and skills.

But science, which Vannevar Bush has described as the endless frontier, cannot be static and still remain science. Even though the individual student may sometimes be as stationary as the bottom man on a totem pole, educational psychology as a whole moves forward not only within the field to which it was originally devoted, but also into new topical areas. These newer topics are closely associated with developmental psychology, with social psychology and personality.

It would be a mistake to regard such changes as an about-face, a denial of former goals, or a conversion to a new faith. There have, to be sure, been over-reactions against earlier fields of interest; there have been crusading attempts to devalue measure-

* Presidential address, Division of Educational Psychology, American Psychological Association, September, 1946.

ment and scientific experiment, and to elevate the 'whole child' into a position of awe and mystery. The advocates of children's needs, of the child-centered school, or of self-expression or self-activity have sometimes carried these reasonable concepts into a sphere of hallellujah which seems foreign to the more sober purposes of science.

But these are phenomena of exploit, marked by emotional rejection or affirmation and by a kind of enthusiastic confusionism. We are concerned here not with the squeaks in the machinery, but with the more lasting products of its operation. To use an organic rather than a mechanical analogy, we may say that educational psychology, like other sciences, has been subject to growth, with aspects both of differentiation and of integration . . . the differentiation of new problems and methods, going beyond our initial preoccupation with individual differences and learning, and the integration of new with earlier achievements.

These growth changes are organically appropriate. We may also call them logical, for we would all concede that the purpose of educational psychology is to assist in the process of education, and this process obviously entails not merely technical learning, not merely the mental ability and educational readiness to learn, but also the personal motivation to learn, the control of maladjustive interferences with learning, and the personal traits which make possible the use of learning in socially desirable ways.

From earlier years we can point to many solid accomplishments which bear on the efficient classification of school children, on techniques of learning and teaching, on the measurements of skills and the prediction of readiness to acquire skills. But it is now realized more clearly than before that this is not enough, for we are more concerned with the implications of the fact that 'persons' go to school, not just an equipment for learning, not just memories, minds or intellects.

THE PERSON IN THE EDUCATIONAL PROCESS

There is, of course, no lack of evidence as to the importance of the person in the educational process. Some of this evidence has been summarized by Gordon Allport in his illuminating discussion of "The Ego in Contemporary Psychology."[2] Allport points out the rôle of ego involvement, or what we might more

simply term the personal stake, in learning, memory, judgment, attitudes, and beliefs. An example is the relationship between learning and the affective tone of the material learned. It is common knowledge that pleasantly toned materials are in general easier to learn than those which are affectively neutral. Unpleasantly toned materials on the other hand may be either easy or hard to learn. They are likely to be hard if the unpleasantness carries an ego reference, if it involves the learner as a person and leads to a feeling of personal uneasiness, infringement or guilt.

Thus, although we can predict for groups, we cannot safely predict for individuals the relative difficulty of things to be learned. We must take into account not only the average difficulty value of the material, but also the learner as a person. Although this seems too obvious to be stressed, Allport observes that in the Yearbook on Learning[15] which the National Society for the Study of Education published only four years ago, "One searches its four hundred sixty-three pages in vain for any mention of the ego, and almost in vain for any recognition of interest. True, one finds occasional remarks to the effect that 'the teacher who neglects the simple but powerful word of praise does so at her pedagogical peril,' but the potential significance of such remarks for learning theory seems lost to view." ([2]p. 465).

The personal factors which exert their powerful rôle in learning are also—it should be unnecessary to say—to be found in every aspect of teacher-pupil relationship and in every aspect of educational psychology bearing upon such relationships. This leads us to the further point, on which we are now (in principle) mostly agreed, that education is concerned not only with the acquisition of subject-matter and the personal factors which may influence this, but also in a direct way with personal maturing, personal and social adjustment, and preparation for community membership.

GROWTH TRENDS IN EDUCATIONAL PSYCHOLOGY

To observe the actual trend with regard to some of these topics, I have made a rough classification of the research reports in the *Psychological Abstracts*, including all of those which seemed to be conceived with reference to the psychology of education,

whether they were in that section of the *Abstracts* or were noted in cross-reference. Account was taken only of empirical studies, not including discussions, summaries or announcements, without data, of a new test or rating scale.

Of these research reports in 1929, approximately forty-five per cent dealt with aptitudes, prognosis or achievement. Only six per cent dealt with personality . . . in terms of a broad concern with personal characteristics, including non-intellectual traits, or in terms of a concern with social relationships, motivation, or adjustment. Ten years later, in the last year before the war, fourteen per cent dealt with personality, and in a more recent count, for the present year, this has increased to twenty-two per cent, while studies of educational achievement and prognosis have diminished slightly.

Thus we seem to have some indication of a trend, and this is also shown by our textbooks in educational psychology, although sometimes in less marked form, for textbooks often have a cultural lag of several years behind scientific practice. Starch's *Educational Psychology*,[2] perhaps the best in the field in 1919, contained practically nothing about personality or child development. This is also true of Pintner's,[16] appearing ten years later. Jordan[11] in his third edition, published in 1942, makes the observation that "most of the desirable outcomes of all education are encompassed in the one of a well-balanced personality—it is the problem of educational psychology to bring about this end." About thirteen per cent of Jordan's volume appears to deal with personality, about ten per cent with interests and motivation, about eight per cent more with growth, and the remainder with topics of more classical repute.

But we also have examples, in very good circulation, of texts which show a somewhat more marked change of emphasis. Gates' *Psychology for Students of Education*,[6] in its first, 1922, edition contained about fifteen per cent of what might be termed child development materials . . . growth, personality, children's interests and attitudes, emotional and social development. In the 1930 edition this had grown to thirty per cent, and by 1942, in an edition by Gates and collaborators,[7] to forty-five per cent. Similarly, Pressey's *Psychology and the New Education*[17,18] contained in 1933 about thirty per cent of child development materials, and in 1944, forty-five per cent.

LIMITATIONS IN CURRENT TRENDS

Thus it is apparent that many teachers in training are today learning much more about non-intellectual aspects of behavior than was the case a few years ago. But we should not neglect to observe that even those studies which emphasize an interest in personality do not necessarily illustrate a concern with persons as individuals. They are more likely to deal with personality traits in the abstract, and with the analysis of trait relationships. Often they exhibit a preoccupation with applying the techniques of measurement to elusive and complex variables, such as 'neurotic tendency' or 'dominance' or 'introversion.' When, in this manner, a well defined and significant personality characteristic is reliably and validly measured we can only feel gratification at the successful extension of scientific method. But too often what we find is a mere numeralization, to use Kantor's phrase, with the neglect of essential features because they are not numeralizable.*

When the educational psychologist does speak of persons, in what context does he use this term? Usually, it appears, in a context of sampling. Not persons as having individual personalities, not cases with case histories, but statistical cases, units to be assembled into distributions, tallied in correlation plots, or punched into IBM cards. All of these are useful operations, no doubt foreshadowed as necessary when man began to learn to count. But perhaps it would be better to speak of the units of these operations not as cases, persons, or individuals, but as nonentities, for the person with whom the mass measurer deals is usually a nonentity in every respect except for one or two or half a dozen measured variables. Possibly it is with this in mind that the individuals in a sample are represented as X_1, X_2, etc., for each is genuinely unknown. The struggle for statistical respectability may not be a struggle to know more about them, but rather a conscientious attempt to increase the N by adding more nonentities to the sampling aggregate.

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* Kantor adds (what should be more obvious to us now than twenty years ago, because there are so many examples of it) that to numeralize or quantify badly conceived variables "can only lead to results which are increasingly precise in their misguidance." ([12] p. 44).

SCIENTIFIC HAZARDS

I do not wish to imply that this is in itself an unsatisfactory situation. On the contrary, it may be quite satisfactory providing we recognize the principle of scientific growth and are prepared to work with trends rather than against them. The textbook writer who marches ahead of the trend (a rare and perhaps non-existent individual) would find himself in the position of displacing well-established, scientifically grounded materials in favor of more dilute outpourings of a newer psychology. It is freely admitted that much of what is now written in the name of personality and child development is scientifically, shall we say, immature. I hope this adjective will be taken in a friendly spirit and not, as someone has said, as a bone of condescension.

One recalls a discussion by James Marshall[13] entitled "Plato, Buddha, and President Hutchins," in which he presents the problem of neurotic scholarship: the neurotic scholar being one who sees daring in an asterisk and finds immortal security in a footnote. We would not substitute this conception of careful research, or re-research, for more genuinely adventurous enterprise, but we are justified in looking most judicially through our bifocals at studies which have 'purposes' and 'techniques' too far out of balance.

Gardner Murphy[14] has described the danger to any science whose methods are developed entirely in advance of its problems, so that the experimenter sees only those phases of a problem for which a method is already at hand. The danger is one of congealing research into a few self-limiting sectors. But there is also a danger, which is by far more to be regarded in the study of personality, of letting our purposes and aspirations so far outrun our techniques that we become complacent in the use of intuition and of other primitive ways of knowing, and neglectful of verifying the things we think we know.

If this is the case, the question may be raised as to whether educational psychology, in becoming more personalistic, may not be in danger of losing or weakening its standards as a science. In considering this question, it is necessary to distinguish between research functions and teaching functions. We must also distinguish between scientific method applied in the interest of

science, and scientific method applied in the interest of education or guidance.

Allport has been our most eloquent American advocate of the view that since "every mental function is imbedded in a personal life," and since "each personality is a law unto itself," the primary goal of the psychology of personality must be to understand the individual forms of mental life ([1] Ch. 20). The comparison of one person with another in respect to their common traits is considered to be only a secondary goal.

Idiographic research of this nature, directed at "understanding some particular event in nature or society," or the unique individual case, is contrasted with nomothetic studies which are directly concerned only with universal phenomena and general laws. Now, the uniqueness of the individual personality, and the influence of unique personal factors upon every aspect of the educational process, are general principles. But the way in which these personal factors operate in any given case, as distinguished from any other case, is a specific matter—important for guidance, for education, but not a prime preoccupation for the scientist. Skaggs has observed that if we carry Allport's doctrine to its extreme there would be as many psychologies as there are individuals. "Whenever a new baby is born a new psychology would have to be written. When it died it would be put aside as of no further interest because this was a unique person." ([20] p. 237).

And yet the teacher, as well as the therapist, must study persons as individuals because the art of teaching as well as of therapy demands individual understanding and individual treatment. In studying persons, we have a choice of relatively more scientific and relatively less scientific methods. The former, we would agree, involve the appropriate use of systematic and standardized techniques of assessment. They involve predictions from these assessments, on the basis of statistical probability. The less scientific approaches consist of interpretation in which data, more or less explicitly known, are combined in what may be called clinical inferences. What is the nature of these inferences as used by the counsellor or teacher? If we speak of them as representing intuition, or clinical insight, or Verstehen, or emphatic or sympathetic understanding, are we describing a

process which is qualitatively different from scientific logic—a process shared by clinicians, insightful teachers, poker players, and other artists in human relationships, but not by scientific workers?

Sarbin has noted that these interpretative processes can be described in one of two ways: "Either they are statistical predictions, made in an informal, subjective, and uncontrolled way, or else they are purely verbal manipulations, unverifiable, and akin to magic." ([19] p. 214). In the former case, they represent an early step in scientific procedure, or perhaps we should say a pre-scientific method which we must all practice when we wish to take account of factors which are not precisely measured or not explicitly formulated, and of relationships and probabilities which are guessed at or 'hunched' at but not exactly known. In the latter case, however, in which Sarbin describes inferences as akin to magic, the procedure is anti-scientific and belongs in the addled region of lore, primitive intuition, and superstition.

THE CASE STUDY AS A TRAINING DEVICE

If it is the task of the teacher to know something about his pupils as persons, then it is also the task of the educational psychologist to acquaint the teacher with the best methods for doing this . . . with methods for measuring abilities, for observing behavior, for interviewing, and for synthesizing these and other approaches. The individual case study is an indispensable aid in this area of instruction. Whether or not it is in itself a contribution to science, we can agree that it is a contribution to teacher-training.

During the past five or six years a number of case reports* have been published for this purpose, and to an increasing extent textbooks now draw upon case studies in order to present concrete examples of individual behavior in life situations. In its proper sphere as an educational device, the case study offers an important supplement to our standard textbooks, and should (to offer one opinion) make up from a quarter to a half of the reading assignments in educational psychology. A serious limitation in this material lies in the small number of cases that can be represented; the more thorough they become, the smaller the number,

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* See, for example, references [3] and [10].

with the likelihood of special selections which express the bias of individual writers. We must guard particularly against selections which appeal to the clinician's fascination with pathology, but which may not reflect the samples of behavior and behavior dynamics ordinarily encountered by teachers.

FIELD METHODS

The further point must now be made that teachers should learn to study persons not merely through the eyes of psychologists who write case studies, but through their own eyes. In many institutions students have little opportunity to acquire, through field experience, techniques of case study. Practice-teaching of subject-matter is demanded, but not practice in learning about and understanding children.

This major weakness in training teachers was one of the principal concerns of the Teacher Education Commission, of which I had the privilege of being a member, and which has recently finished a nation-wide coöperative program directed toward the location of problems in teacher-training and the development of methods for dealing with these problems. One part of this program involved the establishment of the Child Development Collaboration Center at the University of Chicago, where teachers in training, teachers, and professional consultants could work together in conferences, study groups, and workshops, making use of materials which have been assembled from various child research centers. Another part of our Commission's program was in the development of methods of child study which could be practiced by teachers in training. An example of this is presented in some detail in the book published by the Commission, *Helping Teachers to Understand Children.*[5]

In one of the school systems coöperating with the Commission, an intensive program was carried on for several years, beginning with a meeting of a group of teachers with a psychologist. The teachers were asked to present problems for discussion. Their problems were of this nature:

"What would you do with a child who steals?" "How would you handle lazy children?" "What are the ways to stop so much inattention?" Such questions, typical of what psychologists are often asked by worried and overworked teachers, suggest a failure to understand the relation between behavior and a

pupil's earlier experiences, his developmental status, his aspirations. They suggest that teachers are primarily concerned not with understanding behavior, but with obtaining ready-made techniques for controlling and disciplining pupils. The comment seems justified that "Perhaps the most disconcerting thing about these questions was that the teachers seemed to expect answers to them . . . " ([5] p. 2), in terms of standard general procedures which would be applicable to any child showing the problem mentioned. This demand of teachers for authoritative prescriptions in managing children is probably related to the fact, as Burling has pointed out, that the classroom teacher is 'officially' placed in a position to wield authority. "She is backed by the state law and the attendance officer and behind them is the State Reform School. It takes a person with a very deeply rooted respect for personality not to succumb to the temptation of this position and to use authority in inappropriate situations" ([4] p. 159). If we think of this, as Burling has suggested, as an occupational hazard of teachers, we need to take special steps in teacher selection and in teacher-training to avoid overdevelopment of the drive to dominate, rather than of the drive to understand.

These comments are not offered in a spirit of unsympathetic criticism of teachers. If they are deficient in understanding children, or lacking in a psychological approach to behavior problems, must we not attribute these shortcomings in large part to our own failure, as educators of teachers, to give them an effective orientation toward children?

In the particular school system just mentioned, cumulative records had been maintained, for a number of years, containing descriptions of individual children. As a first step in a program of in-service training, the teachers decided to make a study of these records, in consultation with a representative of the Commission. The result of this study was the realization that these records, although cumulative and often voluminous, contained very little objective information about any child. As a rule, they set forth general impressions, without specific evidence. Moreover, these impressions were heavily weighted with value judgments—appraisals of behavior as good or bad, as attractive or disagreeable. If the child's family was mentioned, it was likely to be in terms of social standing, with little or no information

about psychological factors. A good deal was said about the child's achievement, his success or failure as a scholar, but very little of a definite nature about his characteristics as a person.

It was then decided to undertake a coöperative child study program. Study groups were set up, which worked together in collecting developmental records and observational data, and which discussed these records with the Commission's consultant. From the teacher's own evaluation of this program, after a three-year period, it was quite apparent that they had gained new attitudes and new ways of thinking about children. They were more alert to motivational factors in family relationships, and to interpersonal relationships in the classroom. They were more aware of the nature and significance of individual differences, not merely in abilities but also in aspirations, not merely in mental growth but also in physical and physiological maturing. "The impact of the culture, enlisting the influences of social status upon developing personalities became better understood. The school itself became seen as an arena of important social interaction among children." ([5] p. 399).

Such changes could hardly occur without some corresponding changes in teaching methods and in the emotional climate of the classroom. Teachers came to rely less upon threats and admonition, and more upon ingenuity in developing coöperative procedures. Less time was needed for discipline, more time was free for understanding and working with the individual. The implications of this extend, of course, to the curriculum and also to school administration, for it is idle to expect progress in teacher-child relationships if these are submerged in large classes. The educational situation represented by Mark Hopkins at one end of a log is no longer within our present scheme of things. The delicate balance of teacher and pupil on opposite ends of the log is replaced by the concept of a teacher pulling a load—a teaching load, composed, it would seem, of an inert aggregate of pupil units in average daily attendance.

A PROPOSAL FOR UNDERGRADUATE AND GRADUATE TRAINING

The brief account that I have just given is of a program of in-service training designed to combat this concept and to make up, in some respects, for deficiencies in the pre-service education of teachers. The deficiencies are to a large extent a matter of

curricular inertia, due to the preservation of vested interests in course programs. The most important vested interest, in this connection, is the standard beginning course in educational psychology. We think it is a good course; in a study by Jensen, from the testimony of three thousand students educational psychology was regarded as the most valuable part of their program.[8] Since this course was established some thirty or forty years ago, we have witnessed the rise of new courses: in child development and in personality. Each of these is now busily engaged in setting up its own vested interest, with its own secure spot in the catalogue, its own textbooks, its own personnel.

I have no quarrel with any of these parts of the curriculum, except this: that they are parts, not too well integrated, and that the individual child they discuss is rarely treated in an integrated way as a person. The question has been raised before, and I think this is an appropriate place to raise it again, as to whether our teaching would not be more effective if we were to organize these separate courses into a more unified program. This is already being done in some places, but not as yet generally. Such a program would inevitably give greater attention to persons, to the physical, physiological and social factors in the development of persons, and to field work in the observation of behavior. It would prepare for later more specialized work, in the psychological laboratory on the one hand, or in individual case study or guidance on the other. There are implications here also for the research work of advanced students.

Some years ago, Yerkes, reporting on the Yale Anthropoid Station, proudly announced that the Station then possessed fourteen chimpanzees which were born in captivity and whose life histories were known. For biological inquiry, this life history was regarded as the distinctive resource of the Yale station. Yerkes went on to state: "Within a few years there will not—or at least need not—be an individual in the colony whose ancestry, birth date, developmental and experimental history are not matters of reliable record and steadily increasing value."[22]

I once proposed that every leading department of psychology should have as part of its equipment a well-organized cumulative record upon a sample of children studied from infancy.[9] A student who has a year or two years to devote to a dissertation might then be working with a known sample of cases, and upon

a problem bearing a significant relation to other problems of development. The problem might be normative, experimental, clinical, or represent a combination of methods. If longitudinal records are valuable, perhaps for many purposes indispensable, in the study of chimpanzees, should we not also enter a claim for their importance in normal human psychology and especially in educational psychology—not merely for research in child institutes, but more widely for the training and research of graduate students in psychology and education.

Through such a course of study we might expect to develop a generation of students who are more at home with the biological and other disciplines which coöperatively study development, and who are also more at home with the individual child as a person.

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THE RELATIONSHIP OF SOCIO-ECONOMIC STATUS TO PERSONALITY INVENTORY AND ACHIEVEMENT TEST SCORES

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One of the fundamental problems of sociology and social psychology is to determine the effect of various social conditions on the personalities of the members of a society. The impress of social variables upon the individual can be observed and classified from a number of different aspects. One of the most important of these, especially in a mobile, industrial, and stratified society, is socio-economic status. It is the purpose of this paper to consider the relationship of socio-economic status to achievement test and personality inventory scores, as found among sixth-grade public school children in St. Cloud, Minnesota. Before reporting the findings of this study, a brief survey of the pertinent literature will be made.

THE CONCEPT

The most widely-accepted definition of socio-economic status is Chapin's ([4], p. 99): "Socio-economic status is the position that an individual or family occupies with reference to the prevailing average standards of cultural possessions, effective income, material possessions, and participation in group activity of the community."

Young ([39], p. 809) contends that status is a function of interaction, and that it results from acceptance by the self, and by others, of the rôle the person plays in the interaction. Young emphasizes the prestige dimension of status.

Loevinger[24] has given a critical analysis of the concept of socio-economic status. She feels that the concept as used contains several highly diverse and unrelated elements, and that it is neither precise nor accurate to treat this farrago as a disparate unit. Specifically, she asserts that the concept includes a large unrecognized intellectual factor, that the economic element is gratuitous, and that the concept erroneously assumes that social differences are amenable to linear quantification. The intellectual contention is substantiated by the close

relationships found between intelligence and occupational level and status. The vacillating correlations between social and economic status indexes indicate that the two variables are unrelated, rather than subparts of a social cluster. The scaling of occupations by different persons, besides showing a high error of estimate, is dependent upon individual frames of reference, and rarely yields a linear distribution.

These criticisms underscore the need for careful thinking, and suggest that status should be conceived of as a prestige variable dependent on social and economic factors, which are not configurated in any constant manner. The prediction of status, or the measurement of status, will then be based upon a broad sampling of such factors, and will provide estimates of reasonable, although not exact, validity.

REVIEW

There are a number of studies reporting little or no correlation between economic status and educational achievement and intelligence. Nemzek[26] found that measures of father's education, mother's education, and occupational status of father had negligible value for direct and differential prediction of academic success, as determined by grade point averages. Heilman[18] concluded from a study of educational achievement that probably fifty per cent of the variation in educational age was due to hereditary factors, less than thirteen per cent to school training, and not more than one per cent to socio-economic status of the home; the remaining thirty-six per cent was attributed to other undesignated hereditary and environmental factors. In a study of infants it was found that there was no correlation between the children's tested intelligence and parental socio-economic status.[12] The findings of this study are to a large extent invalidated by the zero, even negative, correlations which present research shows to exist between infant scales and children's intelligence tests.

Davidson[7] concluded from her study of highly intelligent children that personality indices were apparently independent of both intelligence and income of parents. Snyder and Snyder[36] found no relationship between background factors of personality maladjustment symptoms in children and economic level of

family. A study of seventy-seven matched pairs of orphanage and non-orphanage children revealed no differences in school achievement marks, but it did reveal better citizenship scores for non-orphanage children, and better attendance records for orphanage children.[2]

The number of studies reporting positive relationships between socio-economic status and educational and adjustment variables is much greater. An excellent study by Neugarten[27] using socio-metric methods depicted the co-variability between friendship status and reputation of school children in a Mid-western community and the social class position of their family. The lower class child had the reputation of being poorly dressed, not good-looking, unpopular, aggressive, of not liking school, of being dirty and bad-mannered, of never having a good time, and of not playing fair. These opinions were shared even by members of his own class group. A study of socially maladjusted boys showed a half-year retardation in reading ability.[10] Wexberg[38] discusses the handicaps of insecurity, hostility, lack of confidence, and discouragement under which the child from the poor home labors in his attempts to succeed at school and elsewhere.

Davis[8] has contributed an especially penetrating analysis of the effect of social class on personality and behavior. He states that social classes are grouped into a hierarchy, and that a differential participation in these classes dictates the acquisition of different behaviors, different social goals, different 'needs,' different codes of right and wrong, and the experiencing of different psychological rewards and anxieties.

Many important social considerations stem from these facts. Lower-class children are often described as unsocialized or unresponsive to middleclass standards of conduct and morality. The chief reason for this, according to Davis, is that their incitement to learn is crippled by the lack of available rewards. The lower-class child is punished for the very fact of his status; it is clear that a child cannot be encouraged in this fashion to undergo the kind of renunciation which middleclass socialization demands. Then, too, the lower-class child is seldom submitted to the kind of detailed supervision which ensures 'goodness' in the middleclass child.

The educational implications are delineated by Davis as follows: "In education today, the ineffectiveness of middle-class sanctions upon the great masses of lower-class children probably is the crucial dilemma of our thoroughly middle-class teachers and school systems. The processes underlying this failure are not yet clear, but it seems probable from life histories that lower-class children remain 'unsocialized' and 'unmotivated' (from the viewpoint of middleclass culture) because (a) they are humiliated and punished too severely in the school for having the lower-class culture which their own mothers, fathers, and siblings approve, and (b) because the most powerful reinforcements, viz. those of emotional and social reward, are systematically denied to the lower-class child by the systems of privilege existing in the school and in the larger society." ([8], p. 610.)

A comprehensive study by Ordan[28] has revealed the factors underlying children's ability to understand social problems. He found that intellectual level was much more influential than socio-economic status in determining the recognition of social problems, and that socio-economic status was not a selective factor in determining in which areas problems would be recognized. A factor analysis of the variables contributing to concept recognition and understanding yielded four factors. The first seemed to be a general verbal or vocabulary trait, and accounted for fifty-two per cent of the total variance. The second had large loadings with vocabulary and socio-economic status, and accounted for eighteen per cent of the variance. It was negatively associated with concept evaluation. Factor three, accounting for six per cent of the variance, was almost entirely a socio-economic status variable; it was highly correlated with evaluation of social problems, but only slightly with recognition. The fourth factor, accounting for three per cent of the variance, was a purely crime vocabulary factor, crime being one of the problem areas considered.

Although additional factors were not dropped out, Ordan felt that they would probably be vocabulary factors specific to the five remaining problem areas. The effects of socio-economic status seemed to be manifested in two aspects, one, (in conjunction with an intellectual factor) dealing with understanding

of social problems, and the other (a pure status factor) related to the evaluation of social problems. It would perhaps be legitimate to define this latter factor as a prejudice factor.

Studies of the relationship between socio-economic status and intelligence have been published for at least the last thirty years. In 1917 Bridges and Coler[3] ranked occupational groups, on the basis of the Yerkes-Bridges point scale, in the following order: professional, traveling salesman, proprietor, skilled labor, and unskilled labor. Pressey and Ralston,[31] and Pressey[30] found that children of fathers in different occupational groups ranked intellectually in the order: professional, executive, artisan, and laborer. A study of British school children gave correlations of from .30 to .40 between intelligence of children and their environment, whether this was measured by economic position of the parents, by the care taken of the home, or by the clothing of the children.[19] Dexter[9] studied 2,782 school children, and found the following intellectual rankings, grouped by father's occupations: professional, clerical, business, skilled labor, semi-skilled labor, unskilled labor. Within the professional group, he found the following rankings: lawyers, bankers, professors, ministers, doctors, and civil engineers.

A widely quoted study by Haggerty and Nash,[17] using the Taussig classification of occupational groups, gave the following ranks: professional, business and clerical, skilled labor, semi-skilled labor, farmer, and unskilled labor. Sandiford[34] secured identical results with children in British Columbia, and Collins[6] found a close relationship between paternal occupation and intelligence of offspring. An important research report by Freeman, Holzinger, Mitchell, et. al.,[11] gave a correlation of .48 between home rating and intelligence of child. Goodenough[15] states that the intellectual differences between social classes are well-established by the age of two, three, or four years, and suggests that this implies the presence of innate differences in capacity. In a study of eleven infant pairs, Gesell and Lord[14] report that the children from high economic levels are superior mentally, and in verbal, practical, and emotional abilities; infants from the lower group excelled in one item, self-care, comprising such acts as washing the face, brushing the teeth, etc.

A correlation of .25 between intelligence test scores and economic status was reported by Stroud,[37] who also found a correlation of −.16 between test scores and size of family. Goodenough and Shapiro[16] discuss the close relationship between social class and intelligence, and demonstrate that the superiority of the upper-class children is a general one, and not confined to particular abilities. Garrison[13] reported that the relationship between socio-cultural status and information is two to three times as great as that between drawing mental age and information. Jordan[21] found a low positive correlation between children's intelligence and paternal occupation. Saltzman[33] discusses her findings at some length, and concludes that nonverbal tests show less divergence in favor of higher economic status children than verbal tests do. She raises the suggestion that children from different social and economic groups should not be judged by the same test.

An investigation of junior high school subjects by Coleman[5] revealed a positive relationship between socio-economic status and achievement in school subjects, number of hobbies, number of extracurricular activities, and intelligence, and a negative relationship between socio-economic status and number of personality problems. Kobler[23] found all of the following factors correlating with intelligence: population change, length of residence, size of family, schooling completed, illiteracy, median rentals, home ownership, radios owned, families on relief, types and vacancies of dwellings, family composition, marital status, occupational differentials, delinquency rates, number of registered voters, and infant mortality rates. Home background was more influential than social adjustment in its effects on intelligence. Maddy[25] concludes that there is a reliable difference in intelligence and personality traits of children from different occupational groups, with a greater difference between girls than between boys. The children from professional groups were more intelligent, more dominant, extroverted, and had more emotional stability; children from semi-skilled families had more worries.

Kerr and Remmers[22] report a correlation of .41 between the grade-point average for four high school years and socio-economic status, as measured by their scale. This correlation

is as high as that usually reported between school marks and intelligence tests. A correlation of .90 was obtained between test scores on their American Home Scale and mean high-school educational status, as determined by standardized tests in Latin, civics, history, and mathematics. The correlation between students withdrawing from high school before graduation and scores on the American Home Scale was −.85, indicating that the students from poorer homes drop out most frequently.

Shaw[35] found a correlation of .41 between scores on the Sims Score Card and Stanford Achievement EQ's. The correlation between average grade and Sims Score Card was .38. With tested intelligence partialed out a coefficient of .27 was obtained between Stanford Achievement EQ's and Sims scores. Using the Stanford-Binet, Wechsler-Bellevue, Iowa Silent Reading, Minnesota Paper Form Board, Minnesota Mechanical Assembly (modified), and Chicago Assembly Test for girls, Janke and Havighurst[20] reported that boys and girls from families of higher social status tended to do better in all tests than boys and girls of lower social position, with the exception of the Mechanical Assembly Test, where there was no reliable difference among the boys. Bird[1] summarizes the evidence in general, and states that social and economic status correlate approximately .40 with measures of intelligence, as given in the literature.

PRESENT STUDY

An attempt has been made in the following study to determine the effects of socio-economic status upon academic achievement and upon personality inventory scores. The population studied was that of sixth-grade public school children (N-127) in St. Cloud, Minnesota. The variables considered were: (1) socio-economic status, as measured by the American Home Scale; (2) age in months; (3) intelligence, as indicated by the Haggerty Delta II Intelligence Test; (4) vocabulary, as determined by the O'Rourke Survey Test of Vocabulary; (5) arithmetic achievement, as measured by the Stanford Achievement Test, Intermediate Arithmetic; (6) reading ability, as indicated by the Iowa Silent Reading Test; (7) language ability, as given by the Language Essentials Test; (8) health information, as determined

by the Orleans-Sealy Health Information Test; and (9) personality adjustment, as measured by the Brown Personality Inventory for Children.

TABLE 1.—MEANS AND STANDARD DEVIATIONS FOR THE TOTAL GROUP OF ST. CLOUD, MINNESOTA, PUBLIC SCHOOL SIXTH-GRADE CHILDREN (N-127), AND FOR THREE SELECTED SCHOOLS: HIGH SOCIO-ECONOMIC STATUS (N-21), AVERAGE SOCIO-ECONOMIC STATUS (N-29), AND LOW SOCIO-ECONOMIC STATUS (N-23), FOR THE FOLLOWING VARIABLES: (1) AMERICAN HOME SCALE, (2) AGE IN MONTHS, (3) HAGGERTY DELTA II INTELLIGENCE TEST, (4) O'ROURKE SURVEY TEST OF VOCABULARY, (5) STANFORD ACHIEVEMENT TEST, INTERMEDIATE ARITHMETIC, (6) IOWA SILENT READING TEST, (7) LANGUAGE ESSENTIALS TEST, (8) ORLEANS-SEALY HEALTH INFORMATION TEST, AND (9) BROWN PERSONALITY INVENTORY FOR CHILDREN.

	Total		High		Average		Low	
	M	SD	M	SD	M	SD	M	SD
AHS	36.6	10.1	43.1	10.5	35.3	10.0	30.7	6.3
Age	143.9	7.8	142.7	5.0	143.6	8.9	147.3	8.2
IQ	114.8	18.6	120.7	20.6	114.6	16.1	107.7	21.6
Vocab	29.6	7.7	33.9	8.9	28.2	5.8	26.6	6.8
Arith	59.5	8.7	57.2	10.1	59.8	6.1	58.9	8.7
Read	142.4	23.0	145.0	21.2	147.6	25.0	133.1	11.0
Lang	73.6	8.5	78.2	7.4	76.0	8.4	73.8	8.7
Health	49.0	9.2	49.4	11.0	44.8	9.3	50.3	9.6
Person	17.5	10.0	16.1	12.6	15.4	11.5	19.6	8.1

From the total of six grade-schools, three were selected for special comparison the highest, lowest, and median school on the socio-economic status continuum. The number of children in each school was twenty-one, twenty-three, and twenty-nine, respectively. The means and standard deviations for the total group, and for each of the three schools, are given in Table 1.

It will be noticed that the population is quite high on intelligence, the mean IQ being 114.8. No reason was found to account for this fact. The average socio-economic status score is somewhat above the national average,[32] 36.6 to 32.19. A school mean of 36.6 is equivalent to a percentile rank of 75 ([22], p. 6.)

TABLE 2.—INTERCORRELATIONS, AND STANDARD ERRORS, AMONG THE FOLLOWING VARIABLES: (1) AMERICAN HOME SCALE, (2) AGE IN MONTHS, (3) HAGGERTY DELTA II INTELLIGENCE TEST, (4) O'ROURKE SURVEY TEST OF VOCABULARY, (5) STANFORD ACHIEVEMENT TEST, INTERMEDIATE ARITHMETIC, (6) IOWA SILENT READING TEST, (7) LANGUAGE ESSENTIALS TEST, (8) ORLEANS-SEALY HEALTH TEST, AND (9) BROWN PERSONALITY INVENTORY FOR CHILDREN; FOR SIXTH-GRADE PUBLIC SCHOOL CHILDREN, ST. CLOUD, MINNESOTA. N VARIES FROM 108–127.

	Age		IQ		Vocab.		Arith.		Read.		Lang.		Health		Pers.	
	r	SE	r	SE	r	SE	r	SE	r	SE	r	SE	r	SE	r	SE
A.H.S..	−.25	.08	.30	.08	.32	.08	.07	.09	.28	.09	.33	.08	.35	.08	−.16	.09
Age....			−.60	.06	−.29	.08	−.25	.08	−.25	.09	−.21	.09	−.24	.09	−.03	.08
IQ.....					.65	.05	.58	.06	.66	.05	.61	.06	.58	.06	−.23	.09
Vocab..							.35	.08	.69	.05	.57	.06	.52	.07	−.22	.08
Arith..									.49	.07	.50	.07	.45	.08	−.28	.08
Read..											.27	.09	.49	.07	−.25	.09
Lang...													.43	.08	−.23	.09
Health.															−.27	.09

NOTE: High scores on the American Home Scale refer to high socio-economic status; high scores on the Brown Inventory refer to a high incidence of personality problems.

Comparison of the high status school with the low status one reveals a difference on vocabulary of 7.39 points in favor of the high status school, which is significant at the one per cent level by the *t* test. The differences on IQ, age, and reading between these two schools are all significant at the five per cent level. The other differences are not significant, except for status, which is significant at the one per cent level.

The differences between the high and average status schools on status and vocabulary are significant at the one per cent

level. The other differences are not significant. The average and low status schools differ significantly at the five per cent level on status and reading; the other differences are again not significant statistically.

Product-moment intercorrelations among the nine variables are given in Table 2. From this table it appears that students from homes of higher socio-economic status are younger, more intelligent, superior in vocabulary, reading, language, and health information, and have fewer personality problems than students from homes of lower socio-economic status. Older pupils in the given grade are retarded intellectually, and on all measures of school achievement; there is no relationship between age in months and personality inventory scores.

TABLE 3.—CORRELATIONS, AND STANDARD ERRORS, BETWEEN ACHIEVEMENT TEST SCORES AND AMERICAN HOME SCALE SCORES AND BROWN PERSONALITY INVENTORY SCORES, RESPECTIVELY, WITH IQ PARTIALED OUT.*

	Vocab.		Arith.		Read.		Lang.		Health	
	r	SE	r	SE	r	SE	r	SE	r	SE
A.H.S.....	.17	.09	−.16	.09	.11	.10	.19	.09	.22	.09
Personality...	−.10	.10	−.18	.09	−.13	.09	−.11	.10	−.17	.09

* High scores on the American Home Scale refer to high socio-economic status; low scores on the Brown inventory indicate good adjustment.

Brighter students tend to come from better homes, to be younger than other students, to secure higher scores on all the achievement tests, and to have fewer personality problems. In general, the various achievement tests are highly correlated with each other, showing that a student doing well on one tends to do well on the others. They are all negatively correlated with personality inventory scores, indicating that well-adjusted students attain higher achievement test scores than do poorly-adjusted ones.

Table 3 gives the correlations between socio-economic status and personality inventory scores and the five achievement

tests, with intelligence test scores partialed out. The resulting correlations are low, although consistent in direction, with the exception of the negative correlation between status and arithmetic. The figures in this table indicate that socio-economic status and personality adjustment, as measured by the Brown inventory, have some relationship to achievement test scores, but that this relationship is very small when intelligence is partialed out.

SUMMARY

The relationship of socio-economic status and personality inventory scores to academic achievement in a group of one hundred twenty-seven sixth-grade public school children was examined. The correlations between status and achievement test scores were clustered near .30, with the exception of arithmetic, where the correlation was .07. The correlations between personality inventory scores and achievement tests were all negative, ranging from −.22 to −.28. With intelligence partialed out, both sets of correlations were significantly reduced.

A comparison of high, average, and low status schools with each other revealed a superiority of the high status school over the average on vocabulary, and over the low status school on vocabulary, IQ, and reading. The average status school excelled the low on reading.

The conclusion appears justified that in this sample, socio-economic status has a slight positive relationship to academic achievement, and that personality inventory scores have a slight negative relationship to achievement.

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THE USE OF 'NONE OF THESE' AS AN OPTION IN TEST CONSTRUCTION[1]

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The greater reliability of the completion type of test item over the usual multiple-choice type is well known. The chance that the respondent will guess the correct answer to a completion item approaches zero, whereas the chance that a multiple-choice item will be guessed correctly is theoretically the reciprocal of the number of choices offered in the item.[2] A second important difference between the two types of items lies in the nature of the mental tasks they impose. The completion type of item requires recall of the correct answer, whereas the multiple-choice type requires only recognition.

The completion type has certain practical disadvantages which offset, to some extent, its theoretical advantages. It lends itself less readily to objective scoring in many areas of testing, since it is rarely possible to anticipate all correct answers which may be given. Even where all or most variants of the correct response can be anticipated (as in mathematics), the scoring process is slowed by the necessity for comparing the answer given by the testee with several acceptable key responses. Furthermore, it prevents the use of the most efficient scoring methods—machine scoring and stencil hand scoring.

The recognition of these facts has impelled test constructors to seek ways of obtaining the maximum benefits of both item types. One product of their efforts has been the invention of

[1] A portion of this article was presented as a paper before the American Psychological Association, September, 1946.

[2] Actually a number of factors operate in the real test situation to modify any theoretical statement of probability of guessing correct answers. If the correct answer in a completion type item is closely associated through language habit with a key word in the item, the correct response may be guessed despite lack of real knowledge of whatever the item is intended to measure. Similarly, the false options in a multiple-choice item may be of varying 'pulling' power and thus upset the theory of equal probability of choice; a very powerful distractor may be chosen with much greater frequency than is represented by chance. Other factors (such as the tendency to answer 'True' in a true-false item) serve to limit the applicability of the equal probability concept.

the 'none of these' response as one alternate in multiple-choice items. The testee is presented with a group of choices from which to select the correct answer to an item, one of these choices being 'none of these.'[3] In most cases, the correct answer to some of the items of the test is the 'none of these' response, to make it effective throughout the test. Considerable care must be exercised to make certain that in items where 'none of these' is a distractor rather than the intended key response, the intended key response is a completely satisfactory answer. This prevents the use of this option in 'best answer' tests, since 'none of these' may too often be the truly best answer.

The theory underlying the use of the 'none of these' option is that it will be chosen by testees who do not find an acceptable answer among the other options in the item. By extending the range of possible responses to the entire subject-matter of the test, it acts as a kind of restricted completion item. For example, if the item requires the addition of several numbers, the testee may find that the result of his addition does not agree with any of the sums presented among the multiple choices. If all options presented are actual numbers, he knows that one of them must be correct and is thereby warned to check his work until he agrees with one of the options. In fact, he is getting positive information from the options. If, however, one of the options is 'none of these,' any answer he gets may agree with it and he may so indicate. The principle applies with equal force in fields other than mathematics. A Current Information test may require the naming of the British Prime Minister. If the testee is misinformed, he may choose the 'none of these' response for any name that occurs to him other than those contained in the other options. If all options give specific names, he knows that one of the names given is the correct answer.

The 'none of these' option is not a complete theoretical substitute for the completion item, since many items can be answered correctly through recognition of the proper response so long as the multiple-choice form is adhered to, whereas completion

[3] Various forms of the 'none of these' response have been devised. For example, an arithmetic problem for which an answer is supplied in the item and the testee is asked to verify whether the answer is correct or not is really a 'none of these' form for a true-false item.

items rely almost entirely on the more difficult and complex function of recall. This option is used, however, as a compromise through which some of the benefits of the completion type may be realized while all the practical advantages of the multiple-choice type are retained.

The foregoing is a theoretical statement of the case, derived through 'armchair' logic. To the best of the authors' knowledge, the validity of the hypothesis has not been subjected to empirical verification; at least, they have been unable to find reports of such verification in the literature. This report is presented to record the results of an empirical investigation of the problem.[4]

A group of five hundred ninety-one applicants for admission to schools of nursing were the subjects for this experiment. These young women were given two twenty-item, five-choice tests: one in vocabulary and one in arithmetic. Three hundred and one of the subjects took standard multiple-choice tests with all options specified; two hundred and ninety took the test with the fifth option as 'none of these' for every item. In each of the tests containing the 'none of these' option, that option was made the correct answer for five of the twenty items.

Since all applicants had also taken the regular nurse testing battery, it was possible to estimate the comparability of the two groups. On the Potts-Bennett vocabulary test, the mean score was 61.2, SD = 17.8 for the specified option group; the mean, 60.4, SD = 16.4 for the 'none of these' group. On the Potts-Bennett numerical test, the specified option group mean was 32.2, SD = 8.9; the 'none of these' group mean was 32.1, SD = 9.0. The groups were apparently sufficiently similar in the relevant abilities.

The experimental tests were administered under very liberal time conditions, so that difficulty values and item-test coefficients would have full meaning. Item-test coefficients were calculated against two criteria: the test of which the item was a part, and the appropriate Potts-Bennett test. The correlation coefficient was calculated by use of upper and lower twenty-seven per cent groups and reference to the chart devised by

[4] The authors are indebted to Miss Edith M. Potts, Director of the Nurse Testing Division of The Psychological Corporation, who obtained the data on which this report is based.

Flanagan. Tables I and II present these data. In looking at the item-test coefficients it should be borne in mind that neither criterion is ideal. The experimental tests were not constructed to measure exactly the same functions as the Potts-Bennett tests; we should not, therefore, expect high coefficients when an item is correlated with this criterion. Moreover, the Potts-Bennett tests are of the specified response type. If we make the not unreasonable assumption that the mental task required is not identical for the two item forms, we may expect that there will be a bias in favor of the specified option experimental form when the individual items are correlated with the Potts-Bennett scores.

As for the test of which the item was a part, it was composed of only twenty items; each item thus may be expected to contribute five per cent to the total score, and the item-test correlation is accordingly spuriously high.

With these considerations in mind, we may inspect Table I, which presents the results for the vocabulary items. As we might expect according to theoretical considerations, the items are somewhat more difficult when the 'none of these' response is used. The per cent passing an item is smaller for the specified option form in only three of the twenty instances (items 1, 3, and 6), and this difference is only one per cent for two of the items and two per cent for the other. The median per cent passing is 73 for the specified option form, as against 60.5 for the 'none of these' form. The standard errors of these per cents are all smaller than three. The underscored item numbers indicate those items whose differences in per cent passing are at least three times their standard errors.

The one dramatic difference is, of course, in item 18. This item asked for the synonym of 'indict.' The choices in the specified form were: prosecute, arrest, acquit, sentence, and charge. In the alternate form 'none of these' was substituted for 'charge,' which change apparently made that item much more difficult.

No attempt has been made to estimate the significance of the differences in item-test correlation. The writers know of no adequate formula for estimating the standard error of a coefficient based on upper and lower twenty-seven per cent groups. The columns headed r_{ic} report the coefficients obtained when

TABLE I.—COMPARATIVE DATA RELATING TO SPECIFIED AND 'NONE OF THESE' ITEM FORMS IN A VOCABULARY TEST

Item	Per Cent Passing		r_{ic}[1]		r_{it}[2]	
	Specified	None of These	Specified	None of These	Specified	None of These
1	97	99	0	0	.27	.17
2	90	80	.49	.48	.58	.56
3	80	81	.29	.02	.36	.39
* 4	73	65	.46	.25	.64	.52
5	92	90	.42	.28	.47	.32
6	74	75	.39	.41	.65	.53
* 7	80	77	.52	.42	.50	.58
8	73	65	.40	.17	.48	.35
9	87	79	0	.16	.11	.16
10	58	45	.46	.23	.57	.55
*11	73	48	.44	.19	.75	.59
12	63	56	.50	.47	.70	.64
13	72	66	.44	.31	.58	.45
*14	74	54	.41	.46	.58	.59
15	59	56	.46	.53	.63	.62
16	56	47	.27	.10	.40	.14
17	66	51	.48	.50	.65	.65
*18	47	6	.24	.21	.30	.36
19	46	45	.54	.41	.68	.48
20	44	37	.39	.30	.50	.45
Median	73	60.5	.43	.29	.575	.50
N	301	290				

[1] Correlation of item with score on Potts-Bennett Vocabulary Test.

[2] Correlation of item with score on twenty-item test of which it is a part.

* Item in which 'none of these' has been substituted for the correct response.

N.B. Items, the numbers of which are underscored, are those in which the difference in per cent passing is at least three times the standard error.

TABLE II.—COMPARATIVE DATA RELATING TO SPECIFIED AND 'NONE OF THESE' ITEM FORMS IN AN ARITHMETIC TEST

Item	Per Cent Passing		r_{ie}[1]		r_{it}[2]	
	Specified	None of These	Specified	None of These	Specified	None of These
1	69	72	.27	.17	.28	.50
* 2	78	65	.42	.27	.58	.62
* 3	84	74	.27	.29	.60	.61
4	64	59	.34	.31	.68	.73
5	45	49	.31	.29	.77	.81
6	48	44	.20	.25	.66	.61
7	71	66	.27	.26	.43	.48
* 8	85	74	.33	.28	.66	.64
9	38	34	.24	.25	.58	.68
10	16	32	.12	.26	.58	.51
11	70	59	.25	.16	.53	.73
12	66	63	.31	.23	.65	.74
13	41	40	.35	.37	.78	.75
14	25	30	.26	.34	.77	.75
*15	29	32	.25	.08	.52	.32
*16	28	37	.28	−.13	.53	.27
17	4	6	−.04	.40	.19	.26
18	6	8	.03	.49	.42	.28
19	61	62	.22	.22	.71	.64
20	73	80	.23	.09	.77	.69
Median	54.5	54	.265	.26	.59	.63
N	301	290				

[1] Correlation of item with score on Potts-Bennett Numerical Test.

[2] Correlation of item with score on twenty-item test of which it is a part.

* Item in which 'none of these' has been substituted for the correct response.

N.B. Items, the numbers of which are underscored, are those in which the difference in percent passing is at least three times the standard error.

the Potts-Bennett vocabulary score was used as the criterion. In general, the specified option form shows the higher coefficients. The median correlation coefficient is .43 for this form, as against a median of .29 for the 'none of these' form. In terms of individual item differences, the 'none of these' form shows higher coefficients in only five of the twenty instances.

When we inspect the coefficients of correlation between the item and the test of which it was a part (columns headed r_{it} in the table), we find the differences between the item forms much smaller than they were when Potts-Bennett vocabulary was the criterion. The difference in medians is only .075. The absolute values of the coefficients are on the whole larger, as one would expect. In fourteen of the twenty items, the specified response form shows higher correlation with the test. In neither per cent passing nor item-test correlation is there marked superiority or inferiority for those items in which 'none of these' was the correct response (the items asterisked in the table).

When we turn to Table II, which contains the arithmetic test data, we find the two item forms quite similar, on the average, both in difficulty and item-test correlation. The median per cent passing is 54.5 for the specified response form and 54.0 for the 'none of these' form. Each form is more difficult in half the comparisons. The differences are in most instances not of much practical importance, though four of them are statistically significant on the basis of a critical ratio of 3. The underscored item numbers again indicate which items meet this standard of significance.

When the Potts-Bennett test is used as the criterion for item-test correlation, the median coefficients are very similar: .265 for the specified option form, .26 for the 'none of these.' The specified option coefficients are higher in eleven items, but two of the most important practical differences favor the 'none of these' form (items 17 and 18). When the test of which the item is a part is used as the criterion, the small difference in median item-test coefficients favors the 'none of these' response (.63 as against .59) although each item form is superior in ten of the twenty comparisons.

The first generalization which can be made as to the results of this experiment is that the theoretical advantages of the 'none of these' response have certainly not been demonstrated.

Neither with the vocabulary items nor with the arithmetic items was there any confirmation of the hypothesis that the use of 'none of these' instead of a specified option would yield a more reliable item.

The most striking finding is the lack of uniform superiority of either item style. The one positive statement that appears warranted by the data is that the relative usefulness of the 'none of these' response varies with the item. Some of the factors which probably affect its usefulness are the difficulty level of the item, the option for which it is being substituted, the population being tested, the conditions under which the test is being administered, the nature of the test, and other possible variables. It is the writers' guess that in the practical test-construction process, the effectiveness of the 'none of these' response is perhaps most dependent on the quality of the other options in the item. If the option for which 'none of these' is to be substituted is a potent distractor, the substitution may be no improvement; it may, in fact, be a mistake. If the option being removed is not very good, the 'none of these' option may prove of real value.

The burden of proof of superiority is probably on the 'none of these' option for at least one reason—though no accurate record of time was kept for the testings, it was the invariable report of the examiners that the applicants taking the 'none of these' forms took much longer to finish the tests. If its use is to be warranted, this type of option should, therefore, be a sufficient improvement to justify the longer time.

Finally, it is not the authors' belief that this experiment is more than a start towards gathering the needed information. Additional research seems called for which will show what happens under many conditions other than those represented in this study.

Examples of 'specified' and 'none of these' option types are:

'Specified'—A *ladle* is a

(A) star (B) crib (C) dipper (D) canoe (E) lady

'None of these'—A *ladle* is a

(A) star (B) crib (C) dipper (D) canoe (E) none of these

'Specified'

? = 33⅓ % of 963

(1) 32.19
(2) 231
(3) 321
(4) 32100
(5) 28890

'None of these'

? = 33⅓ % of 963

(1) 32.19
(2) 231
(3) 321
(4) 32100
(5) none of these

THE USE OF THE HARROWER-ERICKSON MULTIPLE CHOICE (RORSCHACH) TEST IN DIFFERENTIATING BETWEEN WELL-ADJUSTED AND MALADJUSTED HIGH-SCHOOL PUPILS

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Probably many teachers and school administrators have read the enthusiastic reports made by psychologists using the Rorschach ink-blot test and have wished that such a tool were available for use by their schools. Most schools have neither the time nor the trained personnel which would enable them to make extensive use of the individual Rorschach material, but with the development of the Harrower-Erickson Multiple Choice Test (for use with Rorschach cards or slides) it seemed that a group tool might be available for use by teachers and administrators who were not clinically trained in psychology. The present study is an attempt to determine to what extent this multiple choice test differentiates between well-adjusted and maladjusted high-school pupils.

This test has the advantage over the inventory type of measuring instrument in that personality pattern can be measured without subjects having any idea of what is being measured. Such a test has possibilities for use as a screening test to be administered early in the school year in order to select maladjusted pupils in need of personal help and in order to select potential well-adjusted school leaders.

In the spring of 1946, teachers and principals in five Indiana high schools* coöperated with the writer in making a study of maladjusted and well-adjusted pupils. In each school, teachers selected a group of pupils the members of which presented many or difficult disciplinary problems and another group the members of which were outstanding as desirable school citizens. Factors the teachers were asked not to consider in the selection of the

* Elkhart, Michigan City, Mishawaka, South Bend Central, and a city high school whose principal asked that the name of his school remain anonymous.

members of the two groups were: (1) known or assumed IQ, (2) marks in school subjects or on standardized achievement tests, (3) socio-economic background. Those making the selection of pupils were given no hard and fast rules to follow. It was felt that the problem was a practical one and that there were no better criteria than the judgments of teachers having to deal with these problems of adjustment. No fixed percentages of the total school population were to be selected and it was pointed out to the teachers that careful selection was more important than size of group. It was suggested that, if feasible, the maladjusted and well-adjusted groups should be about equal in size. The ratio between the sexes was to be determined by the relative prominence of problems of undesirable school citizenship and desirable school citizenship. Pupils were to be selected from all four classes but an equal distribution was not required.

The five high schools coöperating in this study had a total enrollment of 6558 pupils, 3273 boys and 3285 girls, at the time the groups were selected. From this total population, sixty-six boys were selected as outstanding well-adjusted school citizens, this being 2.0 per cent of the male population, and seventy-six boys were selected as maladjusted school citizens, this being 2.3 per cent of the male population. From the total enrollment of girls, fifty-two girls (1.6 per cent) were selected as outstanding well-adjusted school citizens and thirty-five girls (1.1 per cent) were selected as maladjusted school citizens. It is of interest to note that more maladjusted than well-adjusted boys were selected and that more well-adjusted than maladjusted girls were selected. One senior high school had no ninth-grade pupils so a distribution by classes was difficult to make, but it was found that of the total well-adjusted school citizens twenty-six boys and twenty-four girls were underclassmen (freshmen and sophomores), whereas forty boys and twenty-eight girls were upperclassmen (juniors and seniors). Of the total maladjusted school citizens, forty boys and twenty-two girls were underclassmen and thirty-six boys and thirteen girls were upperclassmen. That is, there seemed to be a tendency to find maladjusted school citizens in the lower classes and well-adjusted school citizens in the upper classes.

In each school the writer administered the Harrower-Erickson Multiple Choice Test to the combined groups selected for that

school. Of course, pupils did not know the bases on which they had been selected for testing. Each pupil was given a test blank and each of the ten Rorschach ink-blots was projected on a screen for three minutes. For the first half-minute of projection the room was darkened and then for two and one-half minutes sufficient light was turned on to permit pupils to indicate their responses while the ink-blot was still visible on the screen. Although he adhered to the three-minute rule, the writer came to feel that two minutes would have been sufficient time. For each of the ten ink-blots the pupils were required to underline three responses and then were permitted to check as many additional responses as they wished.

The numbers of responses checked in addition to the thirty required on each test blank is of interest in itself. The mean numbers of such additional responses and the significances of differences are indicated in Table I. Although well-adjusted boys gave significantly more additional responses than did maladjusted boys, the same was not true for girls. In fact, although the difference is slight and insignificant and based on a smaller number of subjects, maladjusted girls gave more additional responses than did well-adjusted girls. In addition, it may be pointed out that only eight (12.1 per cent) of the well-adjusted boys gave no additional responses and that twenty-four (31.6 per cent) of the maladjusted boys gave no additional responses. The corresponding figures for girls were one (1.9 per cent) and four (11.4 per cent), respectively.

In scoring the Harrower-Erickson test the responses are given numerical values from one to ten, the numbers one to five indicating 'good' responses and the numbers six to ten indicating 'poor' responses, the 'good' responses being those usually found in normal records and the 'poor' responses being those usually found in abnormal records. The author of the test suggests that values six and seven, being statistically less significant, be scored as one-half poor responses and that value ten (for 'Nothing at all'), being especially significant, be scored as two poor responses. These recommendations were followed in the scoring for the present study. A percentage rather than an absolute score is taken as the cutting point between desirable and undesirable records. It has been suggested that forty per cent poor responses be taken as the cutting point although it

has been found in some cases that this percentage is not the most diagnostic.

TABLE I.—MEAN NUMBERS OF ADDITIONAL ANSWERS GIVEN ON THE HARROWER-ERICKSON MULTIPLE CHOICE TEST

		Mean	SE Sample	SE Mean	Diff. in Means	SE Diff.	D/SE Diff.
Boys	Well-adjusted	14.17	11.31	1.40	5.79	1.80	3.22
	Maladjusted	8.38	9.81	1.13			
Girls	Well-adjusted	9.25	12.84	1.80	0.84	2.40	0.35
	Maladjusted	10.09	7.80	1.34			

In the present study, percentages of poor responses at or above various cutting points were computed for the required thirty underlined responses and for the total responses (underlined and checked). In Table II there are indicated percentages of boys having poor responses at or in excess of certain cutting points and the critical ratios for the differences in these percentages of boys are indicated. At all cutting points maladjusted boys are shown to have scores indicative of poorer adjustment than is the case for well-adjusted boys. It will be noted that a cutting point of forty per cent poor responses seems to be the most diagnostic and that the scores for total responses differentiate between the groups more clearly than do scores on required responses only, the only exception being at the fifty per cent cutting point.

Table III is similar to Table II except that data are for girls. At all cutting points, except for required responses at the ten per cent level, maladjusted girls are shown to have scores indicative of poorer adjustment than is the case for well-adjusted girls although none of the differences are significant for either required or total responses. A cutting point of forty per cent does not stand out as being most diagnostic.

Some attempt was made to determine what kinds of responses were characteristic of well-adjusted pupils and what kinds of responses were characteristic of maladjusted pupils. For each

score value, one through ten, the total number of responses so scored was determined for each group of pupils and then this total was divided by the number of pupils in that group.

TABLE II.—PERCENTAGES OF BOYS HAVING 'POOR' RESPONSES AT OR ABOVE CERTAIN CUTTING POINTS

	Required Responses					Total Responses				
Cutting Point.....	50	40	30	20	10	50	40	30	20	10
Well-adjusted.....	6.1	7.6	19.7	40.9	71.2	4.5	4.5	15.2	39.4	65.1
Maladjusted.....	14.5	25.0	39.5	61.8	89.5	11.8	23.7	34.2	61.8	86.8
Difference.....	8.4	17.4	19.8	20.9	18.3	7.3	19.2	19.0	22.4	21.7
Critical Ratio.....	1.68	2.90	2.64	2.52	2.77	1.55	3.43	2.71	2.73	3.06

TABLE III.—PERCENTAGES OF GIRLS HAVING 'POOR' RESPONSES AT OR ABOVE CERTAIN CUTTING POINTS

	Required Responses					Total Responses				
Cutting Point.....	50	40	30	20	10	50	40	30	20	10
Well-adjusted.....	3.8	7.7	15.4	25.0	69.2	3.8	3.8	11.5	26.9	65.4
Maladjusted.....	8.6	20.0	31.4	42.9	65.7	8.6	17.1	31.4	42.9	71.4
Difference.....	4.8	12.3	16.0	17.9	3.5	4.8	13.3	19.9	16.0	6.0
Critical Ratio.....	0.87	1.58	1.72	1.74	0.34	0.87	1.93	2.21	1.54	0.59

It was difficult to interpret such means because on the test there are not equal chances for selecting responses indicative of each of the score values. For example, of the three hundred statements on the test, forty could be scored by value nine, whereas only five could be scored by value five. However, without giving the detailed figures, it may be said that in the case of boys means for 'good' score values, one through five, were found to be higher in each case for well-adjusted than for maladjusted boys. On the other hand, means for 'poor' score values, six through ten, were found to be lower in each case for well-adjusted than for maladjusted boys. These trends were found for both the required and total responses and suggest that the diagnostic value of the test is to be understood in terms of all values. Differences in the case of girls were not

found to be so consistent as in the case of boys. In some cases means for 'good' score values were lower for well-adjusted than for maladjusted girls, and means for 'poor' score values were higher for well-adjusted than for maladjusted girls.

SUMMARY

The Harrower-Erickson Multiple Choice Test was administered to two groups of high-school pupils, the members of one group being selected because they were well-adjusted school citizens and the members of the other group being selected because they were maladjusted school citizens. Pupils were required to underline thirty responses and then were permitted to check as many additional responses as they wished. Well-adjusted boys checked significantly more additional responses than did maladjusted boys, but no such difference was found between well-adjusted and maladjusted girls. In the case of boys, scores on both the required responses and total responses were such as to indicate poorer adjustment on the part of the maladjusted boys than was the case for well-adjusted boys. Scores for the total responses differentiated between the two groups of boys more clearly than scores on the required responses only. There was some tendency for maladjusted girls to have poorer scores than well-adjusted girls, but differences were not statistically significant. Well-adjusted boys tended to have more 'good' responses and fewer 'poor' responses for each score value than was the case for maladjusted boys. This difference in the separate score values was neither so clear nor so consistent in the case of girls as in the case of boys.

CONCLUSIONS

Although the Harrower-Erickson Multiple Choice Test does differentiate between maladjusted and well-adjusted boys, it seems not to differentiate between maladjusted and well-adjusted girls and so its use as a screening test is limited. Furthermore, in the present study it was differentiating between highly selected groups at the opposite ends of the adjustment distribution. It does not seem likely that it would be of value in detecting minor maladjustments in the great group of pupils near the center of the distribution. In the present form of scoring, teachers and others not specifically trained in Rorschach

interpretation would be at a loss to interpret the human, animal, form, color, anatomical, and other values indicated in the answers. Just as group intelligence tests are useful in the school although not as valid as individual intelligence tests, so some day an objective group form of the Rorschach test may be developed which can be interpreted with reasonable accuracy and confidence by teachers and school administrators, although such a test would probably never have the validity of the individual Rorschach test. Certainly, on the basis of the limited data secured in the present study, there is the suggestion that the Harrower-Erickson Multiple Choice Test is of very limited value as a practical screening test for use in high-school guidance work.

PERSEVERANCE AND REPETITION AS FACTORS IN GAIN IN IQ

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The following study grew out of a study of perseverance conducted by the writer some years ago.[1] The work was carried on at Lenox School, a preparatory school for boys, and, among other things, involved the ranking of a number of students on the trait of perseverance by masters who had had close contact with them for some time. Consequently there were available perseverance measures of boys who had attended the school over a period of eight to ten years. The School makes a practice of testing the boys' mental abilities yearly in conjunction with the program of the Educational Records Bureau of New York, and these records were also available.

The ratings to be used here concerned perseverance as it was exhibited in academic work. Each boy was ranked by five to eight masters on a seven-point scale on which 1 was designated as the highest and 7 the lowest category of perseverance, an average amount in the masters' judgment being indicated by 4.

The boys' intelligence test scores indicated that there was a relative as well as the expected absolute improvement from year to year, while some of the more persevering boys seemed to do better than the non-persevering ones in this respect. Primarily, it was to test this impression that the present study was undertaken to see whether there was any significant tendency for perseverance to be associated with increase of intelligence test scores to a greater extent than non-perseverance. Incidentally, it gave a convenient opportunity to compare and evaluate the rôle of repeated administrations in modifying intelligence test scores. IQ's were used as the measure of the increase, since these had been more consistently recorded in the school files and because the population on which the percentiles were based varied somewhat from year to year. It

[1] See "Two tests for perseverance" in the *Journal of Educational Psychology*, November, 1935, pp. 604–610; also *An Experiment in the Diagnosis of Perseverance*, unpublished Master's thesis at Harvard Graduate School of Education, 1935.

was thought that any distortion that the IQ's might display due to the age of the boys (twelve-nineteen) would operate in the same direction for both persevering and non-persevering group and so cancel out.

Accordingly, the boys were divided into two groups. Those whose average perseverance ratings were 3.50 or better were included in the persevering group, those 4.50 or worse in the non-persevering group. Those in between, whose ratings clustered about 4.00, were eliminated. It must be remembered that 4 represented average perseverance in the instructions to the raters. Ages were well distributed in both groups.

Year to year changes in IQ were then noted for each group, and these changes were added algebraically, then averaged.[2] Intelligence tests used were the Otis Self-Administering, Ohio, California, and American Council on Education Psychological. IQ's were derived from the latter by converting A.C.E. scores into Otis units.[3] It was realized that distortion probably occurred in individual cases when changes were measured between different tests. For instance Otis IQ's seemed consistently lower than California IQ's, so that a gain when an Otis administration was followed by a California would not have the same significance as if it occurred between two Otis administrations. But similar patterns occurred with proportionate frequency in the two groups so that distortions were felt to be equalized.

RESULTS

There were one hundred fifty comparisons for persevering boys, ranging from a loss of eighteen points to a gain of twenty, with a mean of three. For non-persevering boys there were one hundred twenty-one comparisons ranging from a loss of fourteen to a gain of fourteen points with a mean of 1.91. The difference between the two groups was only 1.09 points, yielding a CR of 1.45.[4] Even if the difference had been statistically

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[2] Grateful acknowledgement is made for aid in transcribing data to Mr. Spencer P. Kennard, Jr., of Lenox School.

[3] Conversion tables supplied by the Educational Record Bureau, 437, W. 59th Street, New York City.

[4] An allowance of a correlation between the two variables of .38 raises the CR only slightly.

significant, the absolute difference of slightly more than one point suggests that perseverance at best played only a small part in this situation toward determining differences in IQ's from year to year.

DISCUSSION

It is possible that were the comparisons confined to the year during which the ratings were made and the year following, evidence for the effect of perseverance on improvement would have been more clear. Perseverance doubtless shifts from year to year both absolutely and relatively, and a rating for one year may have little relation to perseverance demonstrated three or four years later. Whether this was true could not be determined, since there were no clear records of in just what year perseverance ratings were made with reference to the years represented by the intelligence test records.

But another feature of the data suggesting confirmation of the general findings was that there was little or no correspondence between degrees of perseverance and the extent of the gain in IQ within the two contrasted groups. In other words, one could not predict that a boy with a high rating on perseverance of close to 1.00 would gain any more than another student in the persevering group but having a relatively low rating of close to 3.50. However, these observations were made on the basis of a comparisons of the scores of subgroups in some of which there were not enough cases to make high reliability possible.

However, though the character trait of perseverance seemed not to explain gain in IQ from year to year, it was obvious that the average boy did make a gain, and the problem was to find its cause. Here was an opportunity not only to see what effect familiarity with tests had on the rise in the scores, but to compare its influence with that of perseverance.

The fact that many of the boys were first tested by the Otis test and then, after taking the A.C.E. test, had their scores converted into Otis units in order to arrive at their IQ's meant that IQ's derived from both of these tests could be considered comparable. In some cases the same type of test (though different forms) were repeated; in others there was a shift in type of test the next year. For example, a boy may have started

by taking an Otis test, the next year the A.C.E. test for 1935, and the following the A.C.E. for 1936. Between the first two years the type of test would be different, between the second and third year it would be the same. The reasoning was that if gain in IQ between different forms of the same test was greater than gain in IQ between different tests, to that extent it could be said that the gain was attributable to the fact that the type of test was familiar. Data from the Ohio and California tests were admitted only if an Otis test or one involving Otis equivalents both preceded and followed these tests as a basis of reference. For example, a boy may have made the record in three successive years of Otis 110, California 122, and A.C.E. 116. This would yield two cases where the tests differed from those given the year before, but the gain of twelve points and the loss of six would average out to a net gain of three points a year in IQ as measured by tests yielding Otis units.

RESULTS AND DISCUSSION

The data for this part of the study were derived from roughly the same population as before, though here the middle section of the perseverance range was admitted. There were one hundred twenty cases where different tests were taken in successive years, and the average per year gain on these was .50 points of IQ. On the other hand there were two hundred thirty-nine cases where different forms of the same test were given in successive years (nearly all different forms of the A.C.E. test); here the average yearly gain was 3.71 IQ points. The difference between these two categories, 3.21 points, yielded a CR of 5.42. Thus it seems clear that in this investigation familiarity with the type of test was a larger factor in the increase in IQ than perseverance, for the difference in gain of IQ between two categories contrasted with regard to the familiarity with the test was about three times as great as between two groups contrasted as to degree of perseverance. In addition differences due to varying degrees of perseverance were not statistically significant, while differences due to familiarity and unfamiliarity with the tests were.

Of course there is a sense in which data of these two types are not comparable, for the differences due to perseverance were scaled and somewhat arbitrary, while differences due to

whether a boy had or had not had a certain type of test before would seem to be more absolute in kind. However, as has been mentioned before, it did not seem that confining the perseverance contrast to more extreme types of the trait would have yielded any more clear-cut results.

It may be thought that the training received by the boys at the school may have had some influence on the increase of the IQ's, and this may well have been so. However, if it were so, we would expect it to be confined to the gain showed between

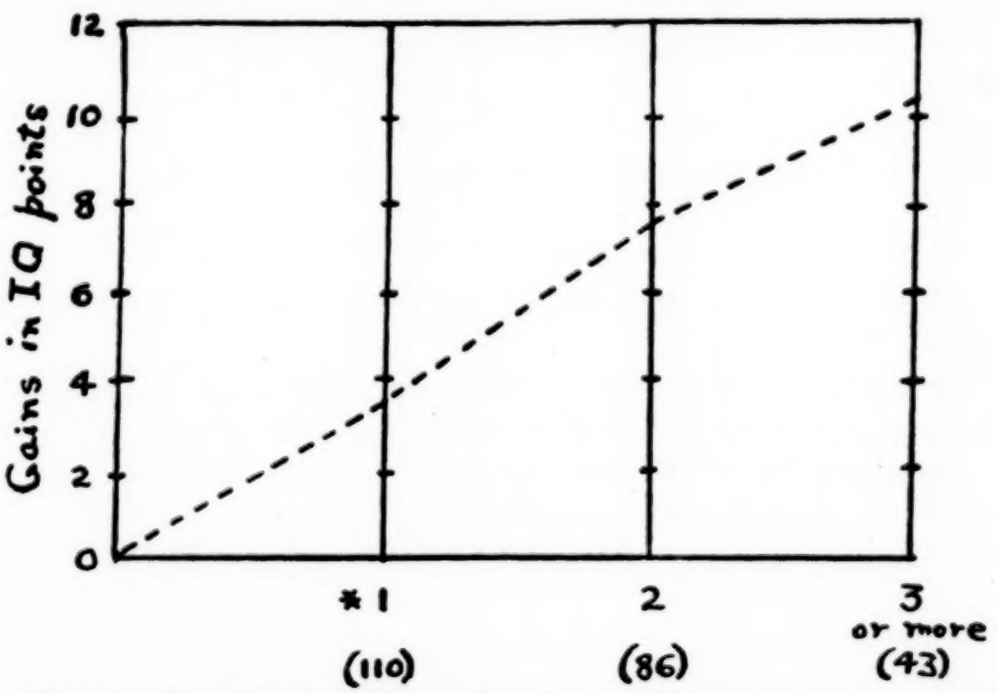

Figure 1.—Cumulative average yearly gain in IQ with one or more repetitions of different forms of the same intelligence test.

administration of different tests of .50 IQ points per year, but only to the extent of .50 points in the gain of 3.71 points between administrations of different forms of the same test. In addition, the factor of general familiarity with the testing situation very likely operated to influence part of the .50 point increase, so that we can conclude with considerable feeling of certainty that neither school training, general familiarity with the testing situation, nor perseverance had much influence as compared with familiarity with the same type of test.

Also we should note that when the same type of test is repeated that there is a fairly consistent gain of three or more IQ points

*Number of repetitions—number of cases in parentheses.

per year at least through the third year, which is about the limit of our data. This is shown schematically in Figure 1. There is only a slight indication of a leveling off process beginning with the third year, though one would expect a ceiling to operate that would limit the gain of each individual after the fourth or fifth repetition of the same test. However, it is noteworthy that through the third year there is an accumulation of about ten points gain attributable to familiarity with the type of test. This seems large enough to suggest the value of some sort of allowance or correction figure for cases where the same type of test is often repeated. Certainly it underlines, at least, the miliar caution for counselors to distinguish children who are 'test-wise' from those who are not, particularly when their experience has been derived from the same type of test.

SUMMARY

1) Year-to-year increases in IQ were found to occur with reasonable consistency.

2) There is little evidence from this study that perseverance at best played more than a small part in these increases.

3) Repetition of different forms of the same test does play a significant part in these increases, accounting for an average of more than three points of IQ a year over a period of at least three years.

4) Other factors, such as repeated administrations of different tests and school training, seemed to have little influence on the gains.

WHY NOT A GOOD READINESS TEST FOR EDUCATIONAL PSYCHOLOGY?

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Readiness for reading, for arithmetic, or for algebra is an important concept in educational psychology. The teacher-to-be is taught to ask: "Are the past experiences, the background, and the developmental stage of this pupil such as to make him ready for formal instruction in reading, arithmetic or algebra?" Unless the learner is ready, formal instruction is ineffective; the time of the teacher is largely wasted and the learner develops a negative attitude or becomes less willing to learn even when ready.

But cannot this concept of readiness be applied advantageously to the course in educational psychology itself? Students are admitted to the course in all stages of readiness; some are decidedly deficient in background experiences while others are fully prepared to participate actively. Significant questions for the instructor early in the course are: "How ready is the class for the formal content of the course?" "Who is ready and who needs additional help to become ready?" Devices and techniques need to be developed to answer these questions rapidly and reliably. The effectiveness of the instruction will in part depend upon the extent to which it is adapted to the readiness that prevails in a class.

In 1935 the writer began experimenting with a number of techniques to discover the extent of readiness for the formal content of educational psychology. One of these devices applied early in the course was to begin a class by having students write replies to the following four questions:

1) If you were entirely free for the next few months to spend your time just as you wish, what would you do?

2) Of all of the books you have read during the last two or three years, list the three books you have liked the best.

3) Of all of the movies you have seen during the last three years, name the three that you have liked the best.

4) If you were in a position to choose the vocation or profession you would prefer above all others, what would you choose?

The tabulated replies were always presented to the class at its next meeting, and, as a continuation of the presentation, the topic of interest, maturation, and readiness was introduced. Incidentally, the replies of the class have always been an effective approach to the topic of interest, maturation and readiness. It is easy for the student to see that his interests determine his replies and then by a follow-up to show the close interdependence of interests upon maturation and readiness. In addition the replies were studied to see what they revealed about the readiness of the class itself for the subject-matter of educational psychology.

The writer is now making an analysis of the data from 1935 to the present. Can a generalization about readiness for the subject-matter of educational psychology be deduced from these accumulated summaries? Are certain types of replies more significant than others for revealing readiness? Do students making certain replies participate more actively in class discussion, read more extensively, and in general exhibit the characteristics of good students of educational psychology?

A break down of the summaries of the replies to all four questions has been carried out, though only the breakdown of the second question (see questions above) is being presented in any detail in this paper. By and large, the replies to the second question were more significant than the replies to any of the other three questions.

The separate listings of best-liked books over the period from 1935 to 1946 totals 28886. This total includes many listings of the same book by separate students. For example, *Gone with the Wind* was mentioned seventy-eight times as a best-liked book. Only 752 titles were included in the 2886 listings. These 752 titles have been classified into the following categories:

Best sellers (both fiction and non-fiction)	44 per cent
Classics (both fiction and non-fiction)	16 per cent
Children's books	16 per cent
Professional books	12 per cent
Miscellaneous	12 per cent

Over the eleven-year period, the writer has made brief comments on each summary of the observed relationship between

best-liked books of individual students and the readiness of the student for participation in the work of the course. On the basis of these accumulated notations, short statements will be made on each of the above groups of books.

*Best-Sellers.**—Best-sellers are not predictive of the type of work that students will do in a course in educational psychology. Good, average, and poor students were equally likely to list best-sellers as best-liked books. No clear cut clues in regard to readiness for the course were disclosed. Of course, some students may have listed best-sellers because it was the popular thing to do. The best-sellers most frequently listed as best-liked books were *Gone with the Wind*, seventy-eight times; *Rebecca*, twenty times; *For Whom the Bell Tolls*, fourteen times; *All This and Heaven too*, fourteen times.

Classics† (*both fiction and non-fiction*).—Classics are of limited predictive value in determining the kind of work that students will do in a course in educational psychology. Students listing classics as best-liked books were usually good students and also were usually much interested in the materials of the course. But this was not invariably true. Many students in this group lacked a readiness for the course, the course content seemed foreign to their interests.

Childrens's Books.—Sixteen per cent of all the listings included such books as the *Rover Boys*, *Black Beauty*, *Boy Scout Manual*, etc. Such listings were highly predictive negatively. Students listing children's books as best-liked were usually immature as college students and deficient in educational background, especially in ability to read college material rapidly and with comprehension. They were often quite inferior as students and sometimes impoverished in intellectual background. But there were many exceptions. Listings of this type on the part of some

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* The lists of *Publishers' Weekly* and the *Saturday Review of Literature* were consulted to establish best-sellers for each year. Both fiction and non-fiction were included.

† No established list was employed. The writer evaluated the separate listings according to books frequently noted as classics by college and high-school instructors and from his own reading. All books on this list were published prior to 1920. *The Bible* and *War and Peace* by Tolstoy are examples of classics.

students revealed a great interest in children. These students analyzed the books to discover why they appealed to children, or what were the characteristics of the book that made it a children's classic. Such students were ready for a study of child development and the rôle of the teacher in guiding learning in school.

*Professional Books.**—Approximately one out of every eight students included among best-liked books specific texts or references in psychology or closely related fields. Such listings were positive and highly predictive; students including specific texts and references in applied psychology or closely related fields were invariably good students. They were enthusiastic about the course, actively participated in class discussions, read widely, and earned high scores on tests and examinations. Usually the student had formulated a definite vocational decision that made the content of the course specifically applicable for a professional career. These students were positively ready for the course.

Miscellaneous Books.—All books that did not fit into the other categories were placed in this group. Books so classified seemed in no way predictive of readiness for educational psychology.

The other three questions were analyzed much less thoroughly, but were predictive on almost the same basis. Replies that revealed clearly formulated vocational intentions requiring an understanding of children or how children learn revealed a student ready for the content material of educational psychology. Such students will participate extensively in all of the activities of the course. They were ready for a rapid vocational development.

To illustrate briefly, many students replied to question No. 1 (see questions above) that their greatest wish was to travel to all parts of the world or to get married and have a home. Some replied by stating that their greatest ambition was to become

* The term 'professional books' seems an appropriate designation for best-liked books of a professional character listed by students with clearly formulated vocational plans. Some examples of this group of books are the following: *Anthology of Children's Literature, Children at the Crossroads, Introduction to Psychoanalysis, Introduction to Psychology, Students' Personal Development, Teaching Music, Textbook in Anatomy and Physiology, Through Children's Eyes.*

a competent teacher, playground director, or summer-camp counselor. These last replies are highly predictive of a good student in educational psychology. They indicate readiness to participate. For question No. 3, many students listed *Goodbye, Mr. Chipps* as a best-liked movie or named other movies depicting a teacher, a psychiatrist, or a student of children in a semi-heroic light. Such answers are somewhat predictive of the motives that drive the student. Or if for question No. 4, the student replies: I would choose to become a primary teacher, A high-school social studies teacher, A boys' counselor, or A physical education teacher, it reveals a favorable attitude toward educational psychology. But none of the other three questions were as reliable as question No. 2 as predictive device. A positive reply naming a professional book as a best-liked book seemed* the most valid of all.

When is a student ready for educational psychology? Isn't it as feasible to devise a test of readiness for educational psychology as for reading readiness? What areas would be probed by such a test or what criteria might be set up to guide the builder of such a test in selecting appropriate test items?

In analyzing the accumulated data and from direct observation of students in educational-psychology classes over an eleven-year period, the writer suggests the following criteria:

A student is ready for educational psychology when—

1) He senses a need to understand how the child develops and learns as an essential for his vocational success.

2) He has come to accept the developmental or growth concept as a valid approach to the learning process.

3) He has come to perceive that development or growth is a result of change within the organism (the child) or an interaction between the organism (the child) and his environment.

Conversely, the student is unready or negatively ready for educational psychology when—

1) He enters the course with erroneous concepts about the developmental and learning processes.

2) He enters the course solely on the basis of a requirement to be met. An adviser can be very harmful or very helpful in

* Not statistically established.

passing along either positive or negative attitudes toward a specific course.

3) The student has blind spots to certain essential content material. Recently, some students have been so indoctrinated against Progressive education that they resist any ideas whatever on learning advocated by Progressive educators.

If and when formulated a readiness test for educational psychology could be used to 'spot' students needing special help in essential background material. These 'blind spots' and erroneous concepts can be cleared up much more quickly if an instructor can learn what they are and who holds them. Then students can be worked with more effectively as individuals, and the class as a whole gets off to a more propitious start. Yes, there is a real need for a good readiness test for educational psychology!

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